

## **METHOD AND SYSTEM FOR CALIBRATION OF A PHASE-BASED SENSING SYSTEM**

### **ABSTRACT OF THE DISCLOSURE**

Calibrating the measurement of a distance between a transceiver and an object such as  
10 a radiating element (antenna) or a target by continuously changing the wavelength  
(frequency) of the transmitted wave and observing the rate of phase shift as a function of  
change in wavelength. The rate of phase shift change as a function of wavelength can be  
mathematically related to the total displacement to the reflecting object. This calibration  
technique is applicable to a sensing device comprising a transceiver configured to transmit a  
15 signal toward an object, detectors offset in phase to receive the transmitted signal and a  
reflected signal, and a processor configured with logic to measure a rate of phase shift  
proportional to the change in wavelength between the transmitted signal and the reflected  
signal at the detectors. The processor can be further configured with logic to relate the phase  
shift to displacement between the transceiver and the reflecting object.

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